



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,188	12/18/2001	Naoyuki Koyama	511.40998X00	7930

7590

02/25/2004

Antonelli Terry Stout & Kraus
Suite 1800
1300 North Seventeenth Street
Arlington, VA 22209

EXAMINER

ELEY, TIMOTHY V

ART UNIT	PAPER NUMBER
----------	--------------

3724

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,188

Applicant(s)

KOYAMA ET AL.

Examiner

Timothy V Eley

Art Unit

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-12 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 3724

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

a. "(s)till . . . polished"(page 3, lines 34-36) is awkwardly worded.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

a. Applicant discloses an additive which includes an organic polymer and not an inorganic polymer.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3724

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, and 12(as far as it is understood) are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese 10-102040 reference.

a. The Japanese reference discloses a CMP abrasive comprising cerium oxide particles, a dispersant(at least one means one or more), an organic polymer inherently having an atom or a structure capable of forming a hydrogen bond with a hydroxyl group present on a surface of a film to be polished and water. See abstract.

b. Regarding claims 2 and 3, as broadly recited, inherently some organic polymers are compounds containing at least one atom having an unpaired electron in a molecular structure and/or containing either one or both of a nitrogen atom and an oxygen atom in a molecular structure.

c. Regarding claim 12, as far as it is understood, the Japanese reference discloses an additive for a CMP abrasive comprising an "organic" polymer and water.

Art Unit: 3724

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sachan et al(2003/0181046) in view of Japanese 10-102040 reference.

a. Sachan et al disclose a method of polishing a substrate by moving the substrate on which a film to be polished is formed and a polishing platen while pressing the substrate against the polishing platen and a polishing cloth(pad) and supplying a CMP abrasive between the film to be polished and the polishing cloth(pad). The CMP abrasive comprises abrasive particles, a dispersant, an organic polymer which is polyvinyl pyrrolidone (applicant's claim 7) and water. See paragraphs 0016 and 0023 and claims 4 and 5.

b. Sachan et al does not disclose that the abrasives are cerium oxide particles.

c. The Japanese reference discloses that it is well known in the art to use cerium oxide particles in a CMP abrasive in order to reduce scratching of the substrate be machined.

Art Unit: 3724

d. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Sachan et al by replacing the abrasive particles used therein with cerium oxide particles in order to reduce scratching of the substrate being polished as taught by the Japanese reference.

e. Regarding claim 8, the molecular weight of the polyvinyl pyrrolidine inherently falls into applicant's broad range.

f. Regarding claims 6 and 9, the sedimentation speed of cerium oxide particles, and the exact concentration of the CMP abrasive would have been obvious matters of choice to one having ordinary skill in the art at the time the invention was made since applicant has not disclosed that the exact speed and concentration are critical to the invention. Also, one having ordinary skill in the art would choose the sedimentation speed of the cerium oxide particles and the concentration of the CMP abrasive dependent upon the desired finish of the substrate.

Allowable Subject Matter

8. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

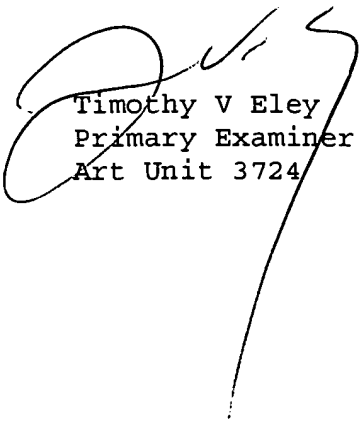
Art Unit: 3724

a. The cited prior art discloses CMP abrasives which include cerium oxide particles.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V Eley whose telephone number is 703-308-1824. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N Shoap can be reached on 703-308-1082. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy V Eley
Primary Examiner
Art Unit 3724

tve